

**“ANALYSING THE IMPACT OF PHYSICIAN
RECOMMENDATION ON THE ADOPTION OF
MEDICAL DEVICES BY PATIENTS”**

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By

DARSHAN CHHAJED D

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MBA PM-13

Under the supervision and guidance of

Mr. RAHUL SHARMA

Assistant Professor

School of Pharmaceutical Sciences

IIHMR University

Jaipur

2023

IIHMR UNIVERSITY

JAIPUR, RAJASTHAN



DECLARATION BY THE STUDENT

I hereby declare that this dissertation titled **“ANALYSING THE IMPACT OF PHYSICIAN RECOMMENDATION ON THE ADOPTION OF MEDICAL DEVICES BY PATIENTS”** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in this text.

Date: 05-06-2023

Place: Jaipur

Signature of Student

Darshan Chhajer D

IIHMR-02/2021-23/0298

MBA PM-13

IIHMR University, Jaipur

IIHMR UNIVERSITY

JAIPUR, RAJASTHAN



DECLARATION BY THE FACULTY GUIDE

This is to certify that dissertation titled **“ANALYSING THE IMPACT OF PHYSICIAN RECOMMENDATION ON THE ADOPTION OF MEDICAL DEVICES BY PATIENTS”** is a record of the research work undertaken by **Darshan Chhajed D** in partial fulfilment of the requirements for the award of the degree of MBA – Pharmaceutical Management from the IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.

Date: 05-06-2023

Place: Jaipur

Signature of Guide

Ms. Rahul Sharma

Assistant Professor

School of Pharmaceutical Management

IIHMR University, Jaipur

IIHMR UNIVERSITY

JAIPUR, RAJASTHAN



ENDORSEMENT BY THE DEAN

This is to certify that dissertation titled **“ANALYSING THE IMPACT OF PHYSICIAN RECOMMENDATION ON THE ADOPTION OF MEDICAL DEVICES BY PATIENTS”** is a bonafide and genuine research work carried out by **Darshan Chhajed D** under the guidance of **Mr. Rahul Sharma**, Assistant Professor, School of Pharmaceutical Management, IIHMR University, Jaipur.

Date: 05-06-2023

Place: Jaipur

Signature of Dean

Dr. Saurabh Kumar

Dean & Associate Professor

School of Pharmaceutical Management

IIHMR University, Jaipur



DECLARATION OF INTERNSHIP COMPLETION BY COMPANY

This is to certify that **Darshan Chhaged D** in partial fulfilment of the requirements for the award of the degree of MBA Pharmaceutical (Management) from the IIHMR University, Jaipur has successfully completed his internship at **Precise Life Science** during March 01, 2023 - May 28, 2023. During this Period, he has also completed his dissertation titled **“ANALYSING THE IMPACT OF PHYSICIAN RECOMMENDATION ON THE ADOPTION OF MEDICAL DEVICES BY PATIENTS”** in our organisation.

Date: 28-05-2023

Place: Bangalore

Mr. Vivek Chhaged

Director, Precise Life Science

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Date: 05-06-2023

Place: Jaipur

Signature of the candidate

Darshan Chhajed D

ABSTRACT

Objective: To analyse the impact of physician recommendations on the adoption of medical devices by patients.

This research helps in the understanding of significance of physicians in the adoption of medical devices and provide insights for healthcare providers, policymakers, and medical device manufacturers. The study will involve qualitative research method. The data will be collected through surveys and Review of literature.

The analysis will focus on several key aspects. Firstly, it will examine the prevalence of physician recommendations for medical devices and determine the types of devices most commonly recommended. This will provide insights into the current practices and preferences of physicians in terms of medical device recommendations.

The study will then explore the impact of physician recommendations on patients' adoption of medical devices. Factors such as patients' trust in their physicians, perceived benefits and risks of the devices, cost considerations, and ease of use will be examined to understand their influence on the decision-making process.

Furthermore, the research will investigate patients' satisfaction levels with the recommended medical devices. By analysing participants feedback and experiences, the research aims to analyse the extent to which physician recommendations align with patients' needs and expectations. This will provide valuable insights into the effectiveness and acceptability of medical devices and guide future improvements in patient-centred care.

Ultimately, this research aims to improve patient outcomes, optimize healthcare resource utilization, and promote patient-centred care in the context of medical device adoption.

Keywords: Physician recommendation, Medical Device, Adoption, Survey, Random Sampling, etc.

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LIST OF ABBREVIATIONS

MD - Medical Device

% - Percentage

Fig – Figure

WHO – World Health Organization

AIDS – Acquired Immunodeficiency Syndrome

HIV – Human Immunodeficiency Virus

FDA – Food and Drug Administration

MRI – Magnetic Resonance Imaging

X-Ray – X Radiation

USA – United States of America

EU – European Union

AI – Artificial Intelligence

ML – Machine Learning

UT – Union Territory

AP – Andhra Pradesh

UP – Uttar Pradesh

HP – Himachal Pradesh

WB – West Bengal

TN – Tamil Nadu

J&K – Jammu & Kashmir

SSC – Secondary School Certificate

HSC – Higher Secondary Certificate

CHAPTER 1

INTRODUCTION

Medical Devices:

To achieve universal health care, address the importance of health, and encourage healthier communities, access to high-quality, cost-effective, and appropriate health products is crucial.

Medical devices are an essential part of many common medical treatments, from simple first aid like sprain ankle bandaging to more complicated interventions like diagnosing HIV/AIDS, implanting replacement hips, and performing surgeries. Medical gadgets are utilised in many different contexts, such as by laypeople at home, paramedics and clinicians in outlying clinics, optometrists and dentists, and healthcare professionals at cutting-edge medical facilities, for screening and prevention, as well as in palliative care. These technologies support the treatment of various ailments as well as the diagnosis of illnesses and the monitoring of therapies, as well as the support of those with impairments.

Over two million different types of medical devices, divided into numerous generic device groupings, are offered on the global market.

Any instrument, machine, appliance, implant, software, substance, or other similar or comparable item, intended to be used alone or in combination for a relevant medical purpose, can be considered a medical device.¹

The FDA has created classifications for nearly 1,700 types of generic devices, which have been categorized into sixteen medical specialties known as panels. Each of these device types has been assigned to one of three regulatory classes based on the level of control necessary to ensure the device's safety and efficacy. These three classes are Class I, Class II, and Class III, each with specific regulatory controls.

Devices classified under Class I are subject to General Controls, either with or without exemptions. Class II devices are subject to both General and Special Controls, again with or without exemptions. Finally, Class III devices are subject to General Controls and Premarket Approval.²

Types of Medical Devices:

Diagnostic Devices: Diagnostic tools are used to pinpoint diseases and disorders in the body. Electrocardiograms, MRI machines, and X-ray equipment are a few examples of diagnostic tools.³

Therapeutic Devices: Medical problems and disorders are treated with the help of therapeutic devices. The following are some examples of therapeutic devices: pacemakers, nebulizers, and insulin pumps.⁴

Monitoring Devices: Monitoring devices are used to track and keep track of patients' vital signs and other health-related data. Blood glucose, blood pressure, and heart rate monitors are a few examples of monitoring devices.⁵

Surgical Devices: Medical operations and surgeries are carried out using surgical devices. Scalpels, forceps, and surgical robots are a few examples of surgical instruments.⁶

Implantable Devices: To deliver therapeutic benefits, implantable devices are surgically inserted within the bodies of patients. Cochlear implants, artificial joints, and heart valves are a few examples of implanted devices.⁷

Physician Recommendation:

When making medical decisions for patients 25 years ago, doctors rarely consulted the patients' wishes. In the past, physicians prioritized benefiting patients over respecting their autonomy and self-determination. However, there has been a shift towards involving patients in medical decisions, and Legal and ethical authorities now support patient involvement. According to evidence, incorporating patients can enhance outcomes including satisfaction and adherence to treatment plans. Nowadays, a lot of authorities demand that patients and doctors collaborate on decisions.

Uncertainty exists regarding the new shared decision-making paradigm's place for physician suggestions. Ethicists have differing views on whether physicians should provide recommendations when patients have access to full and understandable information, and the best decision differs from patient to patient. According to the "mandatory autonomy model," doctors should only offer information and not recommendations to patients, who should make their own decisions. In line with the "optional autonomy model," patients have the option to disregard information and delegate decision-making to their doctor.⁸

Technology breakthroughs have helped the healthcare sector improve significantly in recent years. The creation of medical equipment, which completely altered how healthcare is provided, is one of the most important developments. Medical technology has the power to enhance patient outcomes, raise the standard of treatment, and lower medical expenses. But getting people to use medical technology is still difficult. Patients frequently worry about the cost-effectiveness, safety, and efficacy of medical devices and may not completely comprehend all of its advantages and disadvantages. Physicians are essential in the adoption of medical devices since they are the main source of advice and information for patients.

The influence of a doctor's advice on a patient's behaviour and decision-making has been thoroughly documented in the literature. In many situations, including the usage of medical equipment, patient behaviour is significantly influenced by physician recommendations. However, little study has been done on the elements that affect medical professional advice and the connection between medical professional advice and patient adoption of medical devices.^{9,10}

Medical devices are a vital part of healthcare since they may help with the diagnosis and treatment of a wide range of ailments and diseases. However, a number of variables, including the quantity and calibre of available data, the reimbursement procedures, patient preferences, and physician recommendations, have an impact on the uptake of innovative medical devices by patients and physicians. Understanding these elements can aid in maximising the adoption and spread of novel medical technologies with positive patient and systemic outcomes.

This study addresses a gap in the literature about the factors that influence patient acceptability and physician referral of medical devices, which makes it important. In addition to offering strategies for healthcare providers and medical device manufacturers to improve patient outcomes, reduce healthcare costs, and raise the general standard of healthcare delivery, the study's findings will shed light on the role that physicians play in the adoption of medical devices.

Patient Adoption Of Medical Devices:

Medical equipment has transformed the way health care is delivered, improving patient outcomes, enhancing quality and reducing healthcare costs. But there is still a problem with patient adoption of medical devices. Patients who do not completely comprehend the advantages and hazards of medical devices frequently believe that their safety, effectiveness, and cost-effectiveness are in question. In many cases, medical devices have not yet been widely adopted despite their potential benefits.¹¹

The patient's health status, the seriousness of their medical condition, their perception of the device's benefits, the device's price, and their level of trust in their healthcare practitioner are all variables that can affect how likely they are to use a particular medical device. When selecting whether to employ a medical technology, a trade-off between the risks and the benefits must be made. Patients may also be concerned about how the gadget would impact their daily lives and their capacity to handle them.¹²

According to research, the patient's level of decision-making engagement affects how readily they adopt medical equipment. Patients who participate more actively in the decision-making process are more likely to adopt medical technology. Patient involvement in decision-making can be enhanced through shared decision-making, a process where the patient and healthcare provider work together to decide on the patient's course of treatment.^{13,14}

The involvement of the healthcare sector affects how often patients use medical devices. Informing patients on the benefits and risks of medical devices, allaying patient concerns, and recommending the use of devices are all tasks that must be done by healthcare professionals. The suggestion of the healthcare provider is a crucial factor in patient decision-making since patients are more inclined to accept medical gadgets when their healthcare expert suggests them.^{11,15}

Medical device use has rapidly increased in recent years in the healthcare sector, offering innovative therapies for a variety of medical conditions. Medical devices are tools and equipment that are used to identify, treat, and prevent disorders of the body. They can take many different shapes, from straightforward diagnostic equipment to sophisticated surgical devices. Medical technology has the power to enhance patient outcomes, lower healthcare costs, and improve the standard of treatment.

Patient adoption of medical devices describes how much a patient accepts and uses a medical gadget as part of their treatment regimen. Patient demographics, socioeconomic level, cultural and religious beliefs, and perceptions of the device's advantages and disadvantages are some of the elements that affect how readily patients adopt medical devices. For patients to adopt medical gadgets, patient education and communication are also crucial.¹⁶

The literature has acknowledged the significance of patient acceptance of medical gadgets. The delivery of healthcare must include patient-centred care, which concentrates on the wants, needs, and values of the patient.¹⁷ Health outcomes, patient happiness, and patient involvement in their care may all be improved by medical devices that are created with the patient in mind and customised to meet their requirements and preferences.^{17,18}

The diagnosis, treatment, and management of a variety of medical disorders depend heavily on medical devices, which are a crucial component of contemporary healthcare. Medical device adoption and utilisation in healthcare are significantly influenced by the attitudes of patients and doctors towards these technologies. A positive or negative assessment of a concept or object that directs action is referred to as an attitude. Patients' and doctors' attitudes towards medical devices are influenced by a number of variables, such as their assessments of the risks and advantages involved, their prior interactions with medical devices, and cultural and societal norms.¹⁹

Medical device acceptance and utilisation are significantly influenced by patient views about those gadgets. Medical gadget functioning, usability, perceived efficacy, and safety are just a few of the elements that affect how patients view them. The experiences patients have with medical devices also affect their attitudes towards them, which may have an impact on their future willingness to utilise them. Because they influence the likelihood that they will be adopted and used, patient outcomes are directly impacted by patient attitudes towards medical devices.²⁰

The acceptance and use of medical devices in healthcare is heavily influenced by physician views regarding those devices. The perceived usefulness, safety, and dependability of medical technologies are some of the aspects that affect how doctors view them. Medical device attitudes are influenced by a physician's education and experience, which may affect how confident they are in utilising and recommending a medical device to a patient.²¹

For the proper management of a variety of medical disorders, patient adoption of medical devices is essential. Physician recommendations are just one of many factors that have an impact on patient uptake of medical devices. Given that patients frequently rely on and trust their recommendations from doctors, doctors play a crucial role in suggesting medical devices to patients. Therefore, it's critical to comprehend how medical professional recommendations affect patients' acceptance of medical technology.

A study indicated that a patient's decision to use a medical gadget was significantly predicted by the physician's advice. According to the study, physician endorsement had a favourable effect on patient adoption. The study also emphasised how crucial doctor-patient contact and education are to encouraging patient acceptance of medical technology. Healthcare professionals can create effective strategies to encourage the use of medical devices and enhance patient outcomes by being aware of the influence that physician recommendations have on patients' acceptance of those devices.²²

The suggestion of their doctor is a key element that affects how medical gadgets are adopted by patients. Patients' adoption of medical gadgets depends heavily on doctors because their suggestions can significantly alter patient behaviour. Patients frequently consider medical recommendations to be reliable sources of information and frequently rely on their doctor's counsel when making healthcare decisions. In order to encourage the effective use of medical devices and enhance patient outcomes, healthcare practitioners must fully comprehend the influence of physician recommendations on patient adoption of medical devices.

A study looked at how patient uptake of glucose monitoring devices for managing diabetes was impacted by physician recommendations. The study indicated that patient adoption of glucose monitoring devices was significantly influenced by physician suggestion, and that physician communication and education were important variables in encouraging patient adoption. In order to increase patient adoption of medical devices, the study also emphasised the significance of healthcare personnel supporting patient education and resolving patient concerns.²³

Factors Influencing Patient adoption of Medical Device:²⁴

There are a number of factors that could affect a patient's decision to utilise a medical device once a doctor recommends it. These variables may consist of:

- **Trust in the doctor:** Patients are more likely to abide by their advice, including the usage of medical equipment, if they have faith in their doctors. A patient and doctor's rapport, communication skills, and experience are frequently combined to create trust.
- **Perceived benefits:** Patients are more inclined to utilise a medical device if they believe it will offer concrete advantages, including pain alleviation, greater function, or a decrease in symptoms.
- **Perceived risks:** Patients may hesitate to use a medical device if they think it has serious concerns, such as negative side effects or potential harm.
- **Price:** Patients may consider a medical device's price to be important, especially if they must pay for it out-of-pocket. Even when a device is covered by insurance, people could be reluctant to utilise it if they think it would be expensive or if their finances are tight.
- **Usability:** Patients may be more inclined to use a medical gadget if it is simple to use and easy to incorporate into their regular routines. Patients may be less likely to follow instructions if a gadget is complicated to use or requires considerable training.
- **Perceived social support:** Patients may be more willing to use a medical gadget if they think their loved ones, friends, or medical professionals are behind them. Social support can inspire and motivate patients to follow through with prescribed therapy.

In general, the choice to utilise a medical gadget at a doctor's recommendation is complicated and subject to many different influences. Healthcare professionals can collaborate with patients to create treatment programmes that are suited to their particular requirements and preferences by being aware of these elements.

Significance of Medical Device in Healthcare:

A wide range of medical professions have used medical devices in a variety of ways, making their usage in healthcare more and more prevalent. For instance, medical gadgets can be used to monitor patients' vital signs, deliver medication, and diagnose diseases including diabetes, heart disease, and cancer.

Manufacturing innovative medical devices is a highly regulated process, and producers must adhere to exacting safety and efficacy requirements. Medical device regulation in the US is handled by the FDA, but the European Union has a similar regulatory organisation known as the European Medicines Agency (EMA).

The use of medical devices has significantly impacted healthcare, leading to better patient outcomes and lower costs. For instance, a study discovered that patients with heart failure who used remote monitoring devices experienced lower rates of hospital readmissions and mortality.²⁵

Medical devices are an essential component of contemporary healthcare, with numerous uses in numerous medical disciplines. They can be used to cure illnesses, monitor patient vital signs, diagnose medical disorders, and give medication. Medical equipment can range in complexity from a robotic surgical system to something as simple as a thermometer.

Medical device design and production are subject to stringent rules set down by governmental organisations like the European Medicines Agency (EMA) and the US-FDA. Prior to being offered to healthcare professionals and patients, these regulatory bodies make sure that medical devices are secure, efficient, and up to par in terms of quality.

The quality of life and patient outcomes have significantly improved thanks to medical technology. implanted cardiac devices, such as pacemakers and implanted cardioverter defibrillators (ICDs), have helped patients with heart failure live longer and spend less time in the hospital, for instance.²⁶

Patients with heart rhythm problems previously had few treatment options and were at a significant risk of abrupt cardiac death. Patients can now live healthier, more active lives thanks to implantable cardiac devices.

Similar to how consumers and healthcare professionals are becoming more and more enamoured with wearable medical gadgets like fitness trackers and smartwatches. These tools can keep an eye on a patient's heart rate, sleep habits, physical activity, and other vital signs. For the monitoring of patients with chronic illnesses like diabetes and high blood pressure, wearable medical devices can give accurate and trustworthy data.²⁷

Patient Characteristics:^{28,29,30}

Medical gadgets have improved the diagnosis, treatment, and management of a variety of medical problems, revolutionising the healthcare sector. The use of these devices by patients, however, is influenced by a number of variables, including patient characteristics.

- **Age:** An important variable that may affect the uptake of medical devices is age. Chronic medical issues that call for the use of medical devices are increasingly common in older persons. However, because some gadgets can be challenging to use due to conditions like declining cognitive function, limited dexterity, and impaired vision, they may also encounter adoption difficulties. Additionally, older folks may not be as literate in the digital world, which may limit their capacity to use digital medical tools like mobile health apps.
- **Patients' health:** The use of medical devices might be influenced by a patient's health. Medical device use may be higher among patients with long-term illnesses or impairments than among those without such diseases. Those who have diabetes, for instance, may use glucose metres to track their blood sugar levels, while those who have hearing loss may use hearing aids. Additionally, individuals who have complicated medical issues could need more advanced medical equipment, such implanted devices, which can present more adoption difficulties.
- **Education and income:** The adoption of medical gadgets by patients can also be influenced by their educational and financial status. Patients with higher levels of education and money may be more likely to use medical devices because they have better access to healthcare and are more aware of its advantages. Additionally, patients who have completed more formal schooling may also be more literate in the use of digital technology, which can improve their capacity to use digital medical equipment.
- **Attitudes towards technology:** Patients' opinions of technology may influence whether or not they use medical gadgets. Digital medical equipment may be adopted more frequently by patients who are open to new technology and have a favourable attitude towards it. On the other side, patients who are wary of technology or have unfavourable opinions of digital health may be less likely to use such devices.
- **Cultural and social factors:** Patients' social and cultural origins can have an impact on how they use medical technology. Patients from specific cultural or racial

origins may have distinct perspectives on medical technology, which may influence how readily they adopt new medical technology. Additionally, patients' acceptance of medical devices may be influenced by social variables such family support, carer participation, and peer pressure.

For healthcare practitioners and medical device manufacturers to develop strategies to encourage the use of medical devices, an understanding of these aspects is essential. By taking into account the characteristics of the patients, healthcare professionals may target their patient education and support, and medical device manufacturers can create products that are more user-friendly and accessible to a wide range of patient populations.

An important topic of research in healthcare is how patient acceptance of medical devices is affected by physician recommendations. Analysing this effect can reveal important information about the ways in which doctors can persuade patients to utilise particular medical gadgets as well as the variables that may influence patients' decisions to embrace them. Healthcare workers can create efficient promotional tactics for medical device use that can enhance patient outcomes and quality of life by studying the impact of physician recommendations. In order to boost adoption rates, this data can also assist medical device manufacturers in developing more potent marketing plans that target both physicians and patients.

When it comes to employing medical gadgets, patient decision-making can be significantly influenced by physician advice. Patients frequently rely on their doctors to advise them on the best course of therapy because they trust their judgement. Therefore, a patient's decision to use a particular medical gadget may be influenced by a doctor's recommendation.

CHAPTER 2

OBJECTIVE

The use of medical devices is an essential component of providing healthcare since they can dramatically enhance patient outcomes and quality of life. I intend to add to the body of information on the use of medical devices through this research and offer perceptions that can assist researchers, policymakers, and healthcare professionals.

The Objectives of this research study are:

- To Analyze the Impact of Physician Recommendations on The Adoption of Medical Devices by Patients.
- To investigate patients' satisfaction levels with the recommended medical devices.
- To identify factors influencing participants' choices to embrace medical devices.
- To identify the challenges to patient acceptance of medical devices and to study how physician suggestions can help to overcome these barriers.

Research Question:

The issue is that not enough study has been done to determine how physician recommendations affect patient uptake of medical devices. As a result, it's critical to comprehend how doctors' recommendations affect patients' acceptance of medical technology.

- What is the effect of doctor recommendations on patients' adoption of medical equipment, and what are the potential influencing factors?
- What impact do patient characteristics—such as age, gender, and health status—have on the use of medical devices recommended by doctors?

Plan of the research work:

1. Create a survey form.
2. Data Collection by circulating the Survey form.
3. Data Cleaning and sorting
4. Data Analysis and Discussion

CHAPTER 3

REVIEW OF LITERATURE

Introduction:

This chapter provides a thorough examination of the most recent scholarly articles and research on the topic. The present state of knowledge, theoretical frameworks, techniques, and essential issues connected to the impact of physician endorsement on the adoption of medical devices are well explained in this chapter. It also offers a critical evaluation of a variety of academic works, such as books, reports, peer-reviewed articles, and other important publications.

Literature Review:

Susanne Felgner, Patricia Ex, and Cornelia Henschke (2018), examined how doctors make decisions about implementing new medical technologies. The study also sought to comprehend how doctors felt about the available evidence and the finances through extra reimbursement programmes. Researchers discovered that physicians frequently criticised the strength of the data supporting new medical technology because there weren't enough studies on the subject. In order to facilitate observational research and use new technology in certain specialty centres, doctors advised in order to obtain additional information. While physicians supported the aim of the new approach to medical technology, they questioned its design and implementation. Physicians felt that the implementation of new medical technologies was often driven by economic considerations rather than clinical need.³¹

Adi A. AlQudah, Mostafa Al-Emran and Khaled Shaalan (2021), found that TAM and UTAUT were the most popular models for explaining the adoption of healthcare technologies in a systematic evaluation of 142 papers on technology acceptance in healthcare. Anxiety, computer self-efficacy, innovativeness, and trust were also recognised as key elements in the study, while Taiwan and the United States were highlighted as leading countries in technology acceptance research, with a focus on telemedicine and electronic medical records solutions. The findings provide theoretical insights as well as practical consequences for improving our understanding and expanding our research opportunities.³²

Maximilian Hatz, Jonas Schreyögg, Aleksandra Torbica, Giuseppe Boriani, Carl Blankart (2017), Through a survey of European Society of Cardiology members, researchers studied the factors that influence the adoption of cardiovascular devices. According to the findings, improved manufacturer assistance improves the possibility of adopting new devices, but financial constraints raise the likelihood of adopting old equipment. The study advises that further research into the role of manufacturer support be conducted in order to uncover important diffusion patterns for health technology assessment.³³

ACC Beck, VP Retèl, PA Bhairosing, MWM van den Brekel, WH van Harten (2019), studied the processes for EU market approval and reimbursement of medical devices and found incomplete and inconsistent data on reimbursement practises. The majority of the time to access is dictated by reimbursement policies. The impact of patients on access time is not mentioned. Early patient access is hampered by murky legislation, convoluted approval processes, problematic data collection, and inconsistent evidence standards. Examples of facilitators include data that satisfies national standards, diagnosis-related groups, supplemental incentives, and research initiatives. More research is required to develop explicit criteria and extract new information in order to increase access time.³⁴

Aaron K. Chatterji, Kira R. Fabrizio, Will Mitchell, and Kevin A. Schulman (2008), Researchers looked into patent data and the American Medical Association Physician Masterfile and found that physicians were responsible for nearly 20% of the medical device patents filed in the US between 1990 and 1996. Additionally, they found that physician patents have a greater impact on subsequent inventive activity than non-physician patents. This encourages a collaborative environment for the development of medical devices between industry and physicians.³⁵

Syed Ghulam Sarwar Shah, Julie Barnett, Jasna Kuljis, Kate Hone & Richard Kaczmarek (2012), Researchers identified variables that affect patients' desire to use portable coagulometer devices for self-testing through a cross-sectional study using a self-completed questionnaire. On 125 outpatients in London, UK, the study applied the technology-acceptance approach. Utilising descriptive statistics, factor analysis, and structural equation modelling, the data was examined. The majority of patients who visit outpatient anticoagulation clinics are not aware of portable coagulometers that can be used for INR self-testing. Patients' attitudes about the technology, their faith in doctors, their age, and the cost of the equipment all have an impact on whether or not they intend to use it. ³⁶

Tracie Kong, Mary Morgan Scott, Yang Li, and Cynthia Wichelman (2020), It has been discovered that doctors are eager to use mHealth technology but have little experience doing so. Most doctors were not actively advocating health applications or mobile devices, but they were open to discussing them with their patients. The best apps/devices, in the opinion of doctors, were those that promoted a healthy lifestyle and tracked heart rate. To integrating data with the electronic medical record (EMR), automatic uploads with real-time updates were advised. For doctors to use mHealth technology widely, enhancements like accuracy proof and effective data integration were necessary.³⁷

Bhavana Bhat, Pavithra Pradeep, Manisha Lobo, Anusha, Prathvi, Venkatesh Kamath (2020), decided that because it directly affects a nation's output, personal healthcare is crucial. With increasing technological advancements, the healthcare industry is modernising by utilising cutting-edge technologies for patient care. However, India's medical device industry is still in its infancy relative to the global market, and there are a lot of opportunities here. The historical and current changes in the Indian medical device industry are therefore attempted to be understood.³⁸

Naga Swaroopa S, Venkateswara Raju K, Prasanthi N (2023), analysed that the rise of chronic diseases and sedentary lifestyles has led to an increase in the usage of medical devices, with many patients opting for hassle-free home monitoring devices. Despite high costs and reimbursement issues, medical device professionals are finding opportunities in technological advancements, including the development of smart devices using AI and ML. Technological advancements such as 3D printing have allowed for the creation of devices tailored to patient needs. Harmonization of medical device regulations across markets is important for easy approval and to address issues related to quality, safety, and performance.³⁹

Garima Saini, Vikas Budhwar, Manjusha Choudhary (2022), found that medical device development for COVID-19 is a great achievement, but distribution and acceptance present challenges. The industry faces a need for more home-use equipment due to growing demand. India is a promising market with low per-person spending rates, but anti-trust issues arise with growth. A review aims to raise awareness and survey trust in home-use devices. Insufficient storage and increasing sales of medical devices create difficulties in providing quality goods, but manufacturers strive to adapt. Increased awareness of selling and production could enable researchers to get more knowledge and trust in medical technologies.⁴⁰

Pradnesh Warke, Subham Biswal and Tanay Jha (2023), studied that the use of technology has increased in monitoring patients' health status during and post COVID-19. There are various wearable devices available for continuous monitoring of vitals, which improves safety and incident awareness. Medical technology can lead to better health outcomes, act as a diagnostic tool, and help monitor patients for clinical deterioration. Additionally, using continuous monitoring devices can make it easier for medical staff to move patients safely and need fewer vital sign assessments. However, instead of ongoing monitoring, the majority of hospital beds in India now simply receive sporadic manual spot checks from nurses.⁴¹

Ashish Viswanath Prakash, Saini Das (2021), examined that According to a study on AI-based clinical diagnostic systems, acceptance rates are poor. The intention to use is predicted using a mixed-methods model based on technological trust, status quo bias, and the Unified Theory of Acceptance and Use of technological. The study suggests strategies for increasing adoption by reducing resistance to change and resolving perceived threats and hazards.⁴²

Jie Xiong, Meiyun Zuo (2023), investigated what influences healthcare providers' use of a mobile platform for medical and senior care services. The study found that, using a value-based adoption model, perceived value and legal concerns affect adoption intention, whereas outcome expectations, perceived mobility, perceived effort, and privacy concerns forecast perceived value. The use of mobile platforms for healthcare services can be better understood thanks to these insights.⁴³

Amir Namin, Vahab Vahdat, Catherine Di Gennaro, Roham Amid, Mohammad Jalali (2020), found that Increasing insurance coverage for customized individually made (CIM) knee implants from the current 50% to 90% will lead to 87% adoption in the long term. Continuing medical education (CME) can increase short-term adoption to 48%, but CME combined with increased insurance coverage could increase adoption to 80% by 2021. While CIM is a costlier option for patients upfront, it could potentially provide better outcomes for individuals who are looking to maintain moderate to high activity levels after total knee replacement surgery.⁴⁴

Molly L. Rutherford and Timothy J. Bednarski (2019), gave a review article which summarizes the literature on patient preferences for medical devices. The authors found that physician recommendation was a key factor in patients' decision-making process.⁴⁵

Kerstin Roback, Per-Olof Gaddlin, Nina Nelson and Jan Persson (2007), Vendor actions encourage initial acceptance, but professionals seek information on functionality from close colleagues, according to research on the adoption of medical equipment in neonatal critical care. Full integration is occasionally not accomplished, and diffusion differences mostly affect devices that are being temporarily tested. Subjective expected value, knowledge and learning, and the adopting unit's innovativeness are the three key explanatory variables of adoption.⁴⁶

M. Christopher Roebuck and Anita L. Tucker (2013), Studied Physician Influence on the Adoption of New Technology which explores how physicians influence the adoption of new medical technology and devices. The researchers found that physician recommendations have a significant impact on the adoption of medical devices by patients.⁴⁷

Aliaksei Miniukovich and David W Teply (2015), Specifically in the context of diabetes management, it was looked into how physician recommendations affected the uptake of medical devices. A strong predictor of patient uptake of medical devices, according to the researchers, was physician recommendation.⁴⁸

Elaheh Homayounfar and Ahmad A. Al-Hajj (2018), studied and examined the factors that influence patients' acceptance of medical devices, using diabetic patients as a case study. The researchers found that physician recommendation was one of the most important factors in patients' acceptance of medical devices.⁴⁹

Samira Farivar, Mohamed Abouzahra, Maryam Ghasemaghahi (2020), According to research and analysis, seniors are less likely to accept smart wearable devices because of their perception of their complexity. Cognitive age alone did not significantly affect adoption behaviours in a study utilising mixed techniques, but subjective well-being did. Surprisingly, seniors' intention to utilise the device improves when their subjective well-being is low. The design and promotion of wearable technology directed at seniors may be affected by these findings in a practical way.⁵⁰

Michelle L. Rogers, Emily S. Patterson, and Rebekah R. Jacobson (2016), examined How Patients Adopt Digital Health Technology and The Role of Physician Recommendation. This study examines how patient adoption of digital health technology is influenced by physician recommendations. The researchers discovered that individuals' intentions to utilise digital health technology were significantly predicted by physician recommendations.⁵¹

Andrew J. Epstein, Yaniv Hanoch, and Eric A. Greenberg (2012), explored how doctor recommendations affected people's decision to use cochlear implants. Researchers discovered that uptake of cochlear implants is greatly increased by physician recommendations.⁵²

F. Javier Nieto, Jaime E. Murillo, and Michelle M. Graham (2010), examined how physician recommendations affected patients' decision to use cardiac resynchronization therapy. The researchers discovered that patient acceptance of this technology was significantly predicted by physician recommendations.⁵³

Kavita P. Bhavnani, Fangyu Wu, and Christopher P. Cannon (2018), evaluated how much a doctor's advice affects a patient's adherence to medical device therapies. The researchers discovered that patient adherence was favourably correlated with physician recommendation.⁵⁴

Sarah E. H. Jones, Shari R. Messinger, and Tamara S. Hannon (2019), explored how much influence doctors' recommendations had on whether paediatric type 1 diabetes patients adopted continuous glucose monitoring. The researchers discovered that patient adoption of this technology was significantly predicted by physician endorsement.⁵⁵

Kamal M. F. Itani, Jacob A. Udell, and Jack V. Tu (2018), systematically reviewed and meta-analyzed the impact of medical professionals' recommendations on patients' adherence to medical device therapy. Researchers found that physician suggestions significantly boost patient adherence to medical device therapy.⁵⁶

Danielle L. Horne, Amandeep K. Bains, and Eric C. Leas (2020), conducted a detailed investigation and analysis to determine how patient adherence to medical device therapy is affected by expert medical advice. The study's conclusions demonstrated that recommendations from doctors significantly increase patients' adherence to medical device therapy.⁵⁷

Sunita Taneja, Kanwaljeet J. S. Anand, and Nidhi Gupta (2018), evaluated the effect of medical advice on pregnant women's influenza vaccination uptake. The researchers discovered that pregnant women were much more likely to receive an influenza vaccination when their doctors recommended it.⁵⁸

CHAPTER 4

METHODOLOGY

Introduction:

Analysing The Impact Of Physician Recommendation On The Adoption Of Medical Devices By Patients is the study topic, and this methodology describes the processes done to gather and analyse the data. The study seeks to determine how patient acceptance of medical technology and physician endorsement interact. A survey of people who have used medical devices is part of the quantitative research methodology utilised.

Research Design:

This study's research methodology was a cross-sectional survey. This is done in order to accomplish the study's objective, which is to assess how patient adoption of medical devices is influenced by doctor recommendations at a specific time. The survey will gather information from respondents who have used a medical device and will ask them about the product's adoption, demographics, and doctor's recommendation. The participants' characteristics, such as age, gender, Region of residence, degree of education, and work status, will be revealed through the demographic data. Question-based data will look at the connection between patient adoption of medical devices and physician recommendation.

Sample Selection:

People who have utilised a medical device are included in the sample population for this study. Friends, family members, and other users of medical equipment make up the sample group. Using a convenience sampling strategy, the sample population will be chosen. Convenience sampling involves picking participants who are available and willing to participate in the study. We'll recruit people via social networking websites, email invitations, and personal networks. Patients who have used a medical device, regardless of the device's type or purpose, will be eligible for inclusion in the study. The study will make an effort to enrol people from a variety of age groups, genders, ethnicities, and socioeconomic backgrounds to ensure that a broad set of participants is represented in the study. This Method may not represent the entire population, but it will provide valuable data for the research.

Data Collection:

Through the aforementioned recruitment channels, participants will receive an online survey form that will be used to collect data. The survey will have two sections: (1) demographics, and (2) questions about physician recommendations and the use of the medical equipment. Questions about the participants' age, gender, educational attainment, and geographic location will be included in the demographics section. The strength of the physician's advice, if the physician offered information on substitute devices, and whether the physician covered the dangers and advantages of the device were some of the topics covered in the questions on the physician's recommendation. The questions about the use of the medical device will cover topics including how frequently it is used, how satisfied users are with the equipment, and the reasons why users stop using the device.

Data Analysis:

Descriptive statistics were utilised as the method of data analysis in this study. The demographic information and data based on the questions will be summarised using descriptive statistics. The data will be summarised using Microsoft Excel. The data will be examined using pivot tables and visualised using a variety of graphs, including bar charts, pie charts, column charts, and maps.

Ethical Considerations:

Prior to their participation in the study, each individual will be asked for their informed consent, and the investigation will adhere to all ethical standards for research involving human subjects. Participants will be made aware of the study's voluntariness, their right to withdraw at any time, and the confidentiality of their information. The obtained data will be kept securely and only the researchers involved in the project will have access to it.

CHAPTER 5

RESULTS AND DISCUSSION

Introduction:

This chapter intends to investigate and assess how suggestions from doctors affect patients' use of medical technology. This chapter gives a thorough examination of the data gathered as well as the conclusions drawn from the research study that was carried out. The impact of doctor recommendations is examined in order to clarify the factors that affect patients' decisions about the usage of medical equipment. This chapter intends to extend the body of knowledge on the subject for academics, decision-makers, and healthcare professionals who are trying to improve patient outcomes and maximise the use of medical devices through in-depth discussions and insightful guidance.

No. of Participants who took part in this Survey: 170

Analysis of Respondents Demographics:

1) Age and Gender

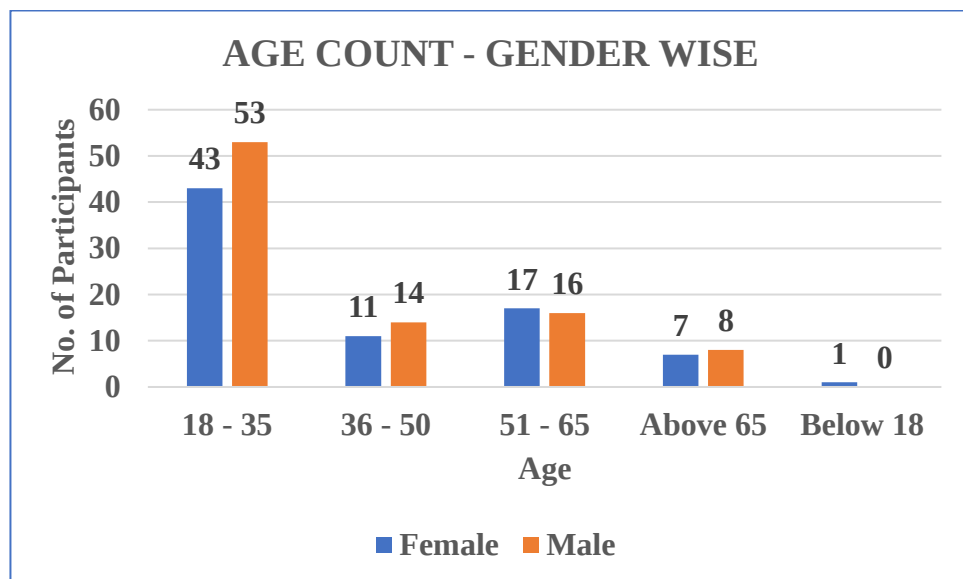


Fig 5.1: Column Chart Showing Age and Gender of the participants

Discussion and Findings:

- Male participants made up 53.5% of the group while female participants made up 46.5%.

- Among the age groups, the majority of participants, accounting for 56.47%, fell within the 18-35 age range. Within this group, 53% were male and 47% were female. The 36-50 age range comprised 14.71% of the participants, with a slightly higher percentage of males (56%) compared to females (44%).
- For the 51-65 age group, 19.41% of the participants belonged to this category, with a nearly equal distribution between males (48.48%) and females (51.52%). Participants above the age of 65 accounted for 8.82% of the total, with a slightly higher representation of males (53.33%) compared to females (46.67%).
- Additionally, there was one participant below the age of 18, representing 0.59% of the total. This participant was female, as there were no males in this age category.

2) Education and Employment Status

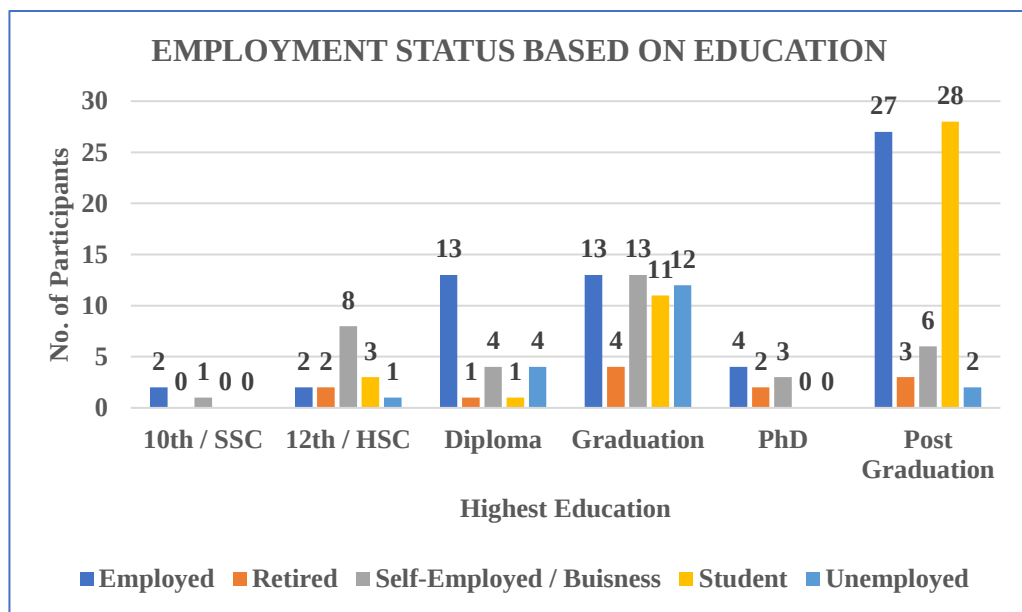


Fig 5.2: Column Chart Showing Highest education qualification and Employment status of the participants

Discussion and Findings:

- All the participants were educated.
- In terms of employment status, the majority of participants, accounting for 35.88% of the total, are employed. They represent a diverse range of educational backgrounds, with the highest number of employed individuals holding post-

graduate degrees at 44.26%. This is followed by those with graduation degrees (21.31%) and diplomas (21.31%). The presence of employed individuals is also noticeable among those with 10th / SSC and 12th / HSC qualifications, although they constitute smaller proportions at 3.28% and 3.28% respectively.

- The retired participants make up 7.06% of the total and For business-related activities, 20.59% of participants are involved in entrepreneurial pursuits. Around a quarter of the participants (25.29%) are students, with the majority pursuing post-graduate degrees (65.12%).
- The highest education level breakdown reveals that participants with post-graduate degrees have the largest representation at 38.82% of the total. Graduation degree holders follow closely behind at 31.18%, while individuals with diplomas make up 13.53% of the participants. The percentages for 10th, 12th, and PhD holders are 1.76%, 9.41%, and 5.29% respectively.

3) Geographical Location

Table 5.1: Region of the participants

Region	No. of Participants
Eastern India	20
Northern India	69
Southern India	55
Western India	26
Total	170

Discussion and Findings:

- The highest percentage of participants is from Karnataka with 15.29% of the total, followed by Delhi with 8.24% and Rajasthan with 8.82%.
- States like Goa, Jammu & Kashmir, Sikkim, and West Bengal have the lowest representation, each accounting for less than 1% of the total participants.
- The distribution reflects a varied participation across different states and Union Territories.
- There are 69 participants in the Northern Region (Delhi, Haryana, HP, J&K, Punjab, Rajasthan, Uttarakhand, UP), or 41% of all participants.

- Southern Region (AP, Karnataka, Kerala, TN, Telangana) has a total of 55 participants, representing around 32% of all participants.
- Eastern Region (Bihar, Sikkim, Jharkhand, WB) has a total of 20 participants, i.e., 12%.
- Western Region (Goa, Gujarat, Maharashtra) has a total of 26 participants, representing around 15% of all participants.

Analysis of Questions Based on the Research Objectives and Questions:

1) Knowledge on Medical Device

The findings revealed a unanimous level of knowledge regarding medical devices among all the 170 participants. Remarkably, every individual included in the study demonstrated familiarity with medical devices, indicating a notable awareness and understanding of their purpose, functions, and potential applications.

2) Recommendation of Medical Device by Physician

The results indicated that all 170 participants were recommended a medical device by their physician. This suggests that the medical practitioners involved in the participants care deemed the utilization of medical devices as an essential aspect of their treatment plan.

3) Adoption of Medical Device recommended by the Physician

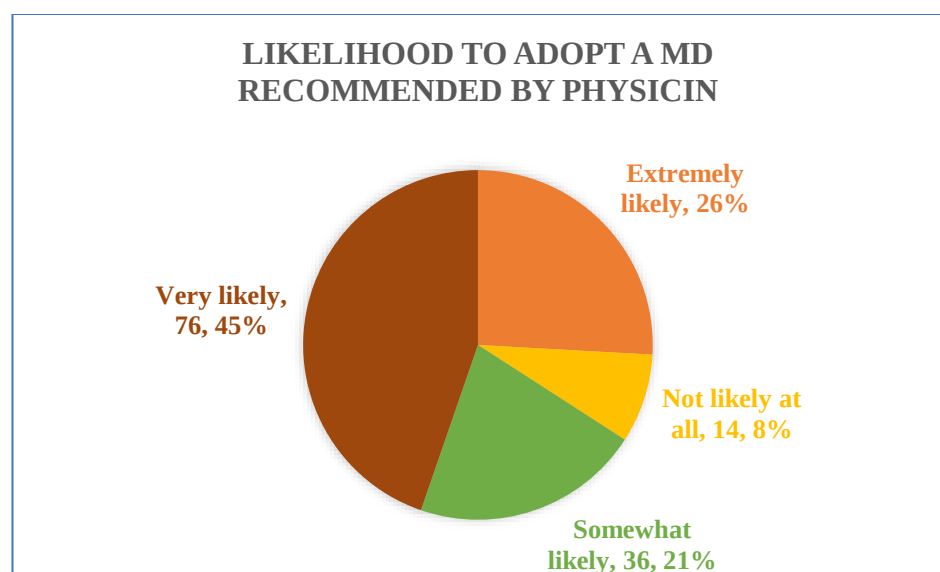


Fig 5.3: Pie chart showing Likelihood of Participants to adopt a MD recommended by Physician

Discussion and Findings:

- 44.71% of the total participants, expressed a strong inclination to adopt the recommended medical device, categorizing themselves as "Very likely." Their high level of willingness to adopt the recommended device suggests a positive attitude and confidence in the device's efficacy and potential benefits.
- In addition, 25.88% of all participants were labelled as "Extremely likely" to use the medical gadget. This group has an even larger propensity to adopt the suggested technology, demonstrating a greater degree of confidence in its efficacy.
- In contrast, 21.18% of all participants said they would be "Somewhat likely" to use the medical equipment. This group has a fair amount of openness and receptivity to adopting the technology, reflecting a moderate level of willingness.
- A smaller portion of the participants, 8.24% of the total, said that they were "Not at all likely" to use the medical gadget that was suggested. These people could be reluctant to use the suggested equipment for a variety of reasons or worries.
- The analysis of the participants' propensity to use the suggested medical gadget sheds light on their attitudes and opinions of it.

4) Impact experienced on health using a MD recommended by a physician

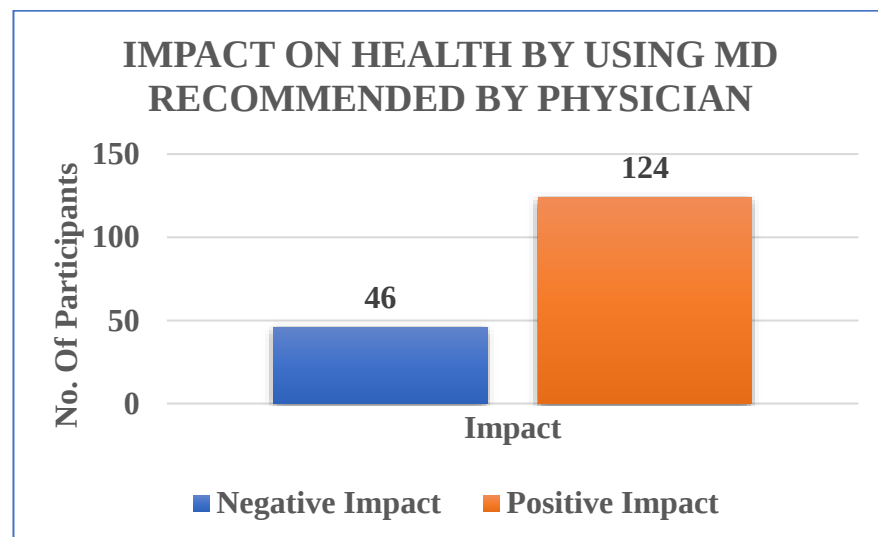


Fig 5.4: Column chart showing Impact experienced by participants on health using a MD recommended by a physician.

Discussion and Findings:

- When utilising the suggested medical gadget, 72.94% of all participants said it had a favourable effect on their health. The favourable effects felt by these people show that the suggested medical equipment has successfully improved their health, symptom management, or general well-being.
- On the other hand, 27.06% of all participants stated that utilising the suggested medical gadget had a detrimental effect on their health. The detrimental effect may be attributable to a number of things, including discomfort caused by the device, ineffectiveness in achieving the intended goal, or unfavourable reactions. To maximise the results and guarantee patient satisfaction, it is essential to take into account and address the issues brought up by these individuals.
- A review of the participants' reactions to the advised medical gadget reveals a range of results, with a sizable majority of them claiming a beneficial effect on their health. The existence of a subset of people who suffered unfavourable effects must be acknowledged, nevertheless. Continuous feedback and evaluation can help to improve patient outcomes, ensure a positive influence on health, and improve the selection and recommendation process for medical equipment.

5) Factors influencing decision to adopt a recommended medical device

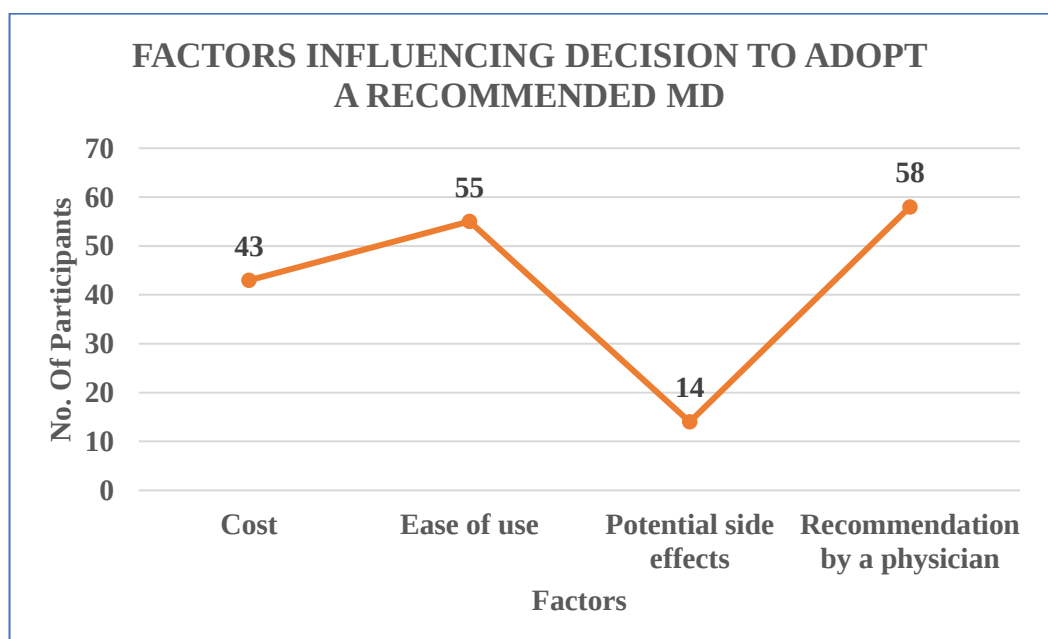


Fig 5.5: Line Graph Showing Various Factors influencing Participants decision to adopt a recommended medical device

Discussion and Findings:

- 34.12% of the total participants, selected the factor which had the highest influence i.e., "Recommendation by a physician." This highlights the trust and confidence placed in healthcare professionals and their expertise in guiding patients towards appropriate medical device adoption.
- Another prominent factor was "Ease of use," with 32.35% of the total participants identifying it as an influential factor. The ease of use of a medical device is crucial for participants to comfortably incorporate it into their daily routines, facilitating its effective utilization and maximizing its benefits.
- 25.29% of the total participants indicated that the cost of the recommended medical device influenced their decision. Cost considerations are important as participants evaluate the financial implications and feasibility of acquiring and maintaining the device.
- "Potential side effects" emerged as a comparatively lesser influencing factor, with 8.24% of total participants considering it in their decision-making process.
- Decision-making is complex, as shown by the analysis. It is possible to optimise the adoption and use of medical devices in healthcare settings by recognising and addressing these contributing factors,

6) Importance of 'recommendation of a physician' in decision to adopt a MD

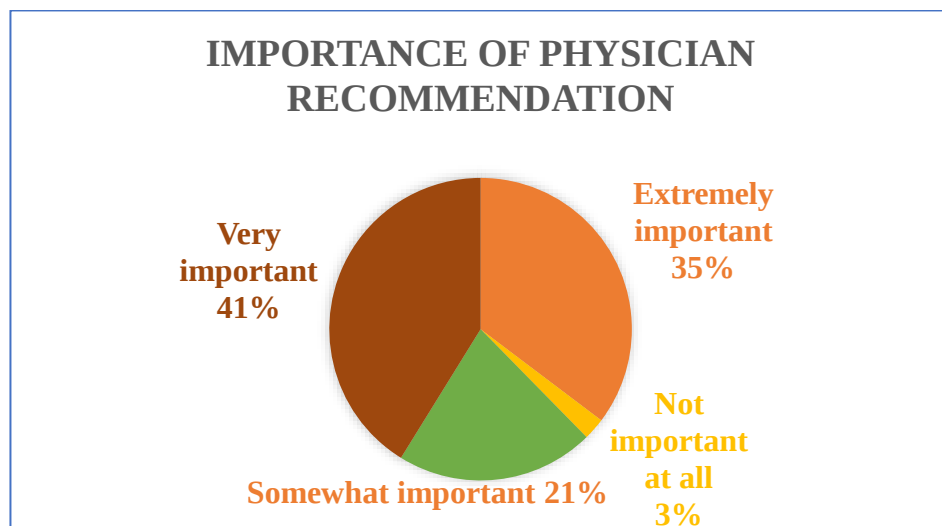


Fig 5.6: Pie chart showing Importance of Physician recommendation in participants decision to adopt a Medical Device

Discussion and Findings:

- The majority of the participants, 41.18% of the total, rated a doctor's suggestion as "Very important" in their choice-making process. Their acknowledgment of the high importance placed on the physician's recommendation indicates the significant role that healthcare professionals play in guiding and influencing patients' decisions regarding medical device adoption.
- Furthermore, 35.29% of the total participants, categorized the recommendation of a physician as "Extremely important." This group demonstrated an even higher level of importance assigned to the physician's recommendation, underscoring the substantial impact that healthcare professionals' expertise and advice have on participants' decision-making.
- Additionally, 21.18% of the total participants considered the recommendation of a physician as "Somewhat important," suggesting a moderate level of importance in their decision. This group acknowledges the value of the physician's recommendation but may also consider other factors in their decision-making process.
- Conversely, only 2.35% of the total participants, indicated that the recommendation of a physician was "Not important at all" in their decision. It is important to note that this subset of participants may have alternative sources of information or personal preferences that influence their decisions regarding medical device adoption.
- The analysis reveals that the recommendation of a physician holds a high level of importance in participants' decisions to adopt a medical device. These findings highlight the critical role of healthcare professionals in guiding and influencing patients' decisions, emphasizing the trust and reliance placed on their expertise and recommendations.

7) Refusal to adopt a medical device recommended by a physician

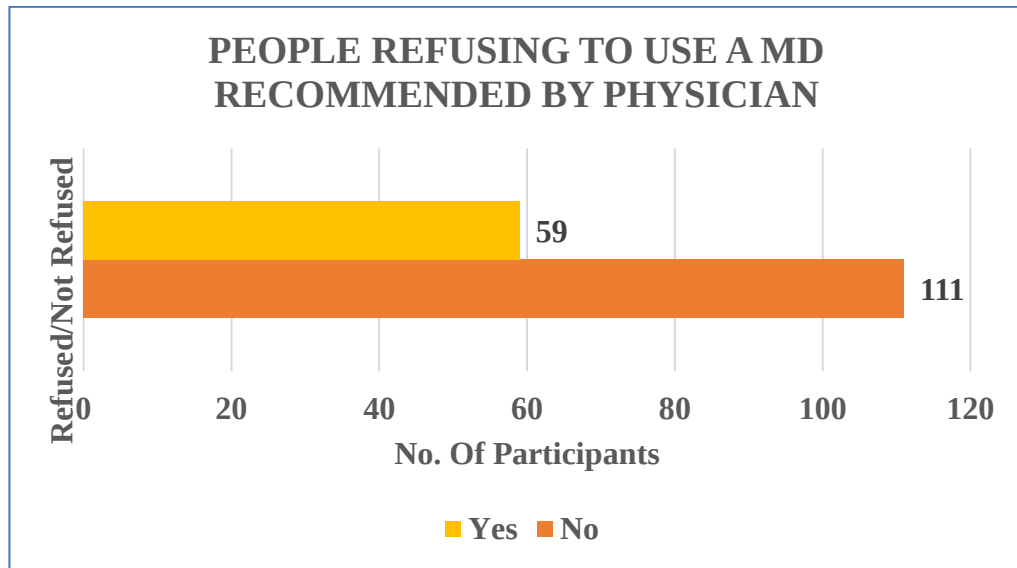


Fig 5.7: Bar Chart showing Participants refusing and not refusing to adopt MD recommended by Physician

Discussion and Findings:

- Among the participants, 65.29% of the total, responded with "No" to refusing the adoption of the recommended medical device. This indicates that the majority of participants were open to adopting the device as suggested by their physician, reflecting a willingness to follow the medical professional's guidance.
- On the other hand, 34.71% of the total participants responded with "Yes" to refusing the adoption of the recommended medical device. Understanding the reasons behind the refusal can help healthcare professionals tailor their recommendations and address any concerns or barriers that participants may have, ultimately promoting informed decision-making and patient satisfaction.

8) Reasons to Refuse to adopt a recommended medical device

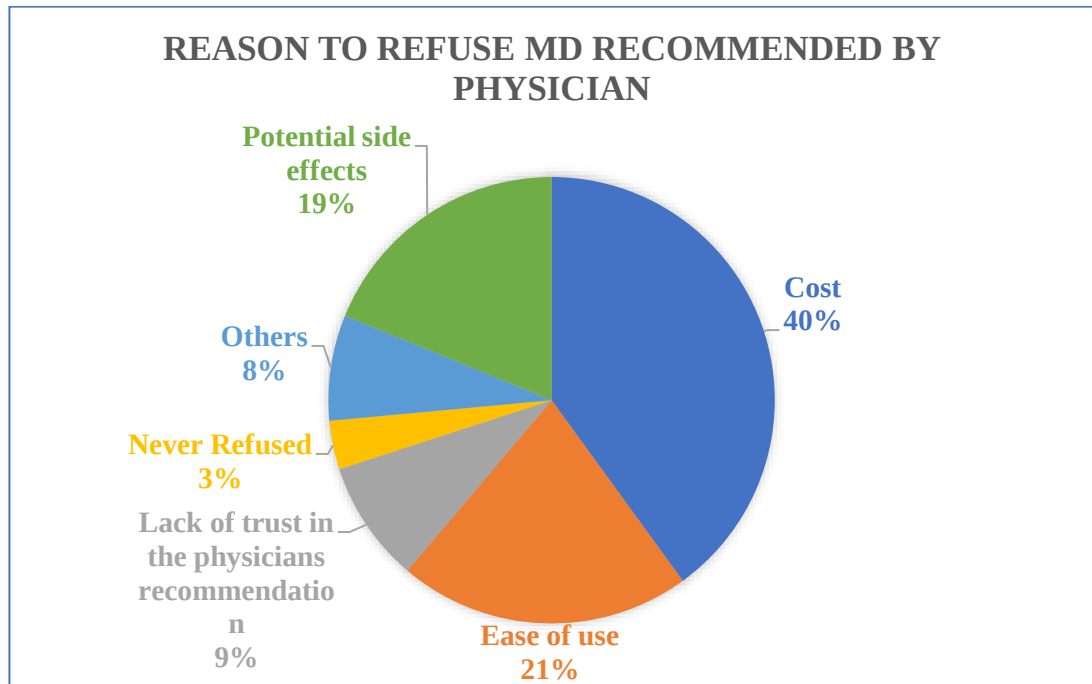


Fig 5.8: Pie chart showing distribution of Reason of Participants for refusing to adopt MD recommended by Physician

Discussion and Findings:

- Among the participants, "Cost" was highlighted as the main deterrent by 40% of those who said they would not use the suggested medical equipment if it were adopted. This shows that obtaining and maintaining the equipment on a budget posed substantial obstacles for these participants.
- "Ease of use" was another frequently cited reason, with 21.18% of all participants citing it as a factor influencing their refusal. This shows that the participants thought the technology was difficult to use or cumbersome, which may have influenced their choice not to adopt.
- 18.82% of all participants stated "Potential side effects" as their justification for not using the suggested medical equipment. This demonstrates worries regarding the device's safety and its side effects, which led to their choice to forego adoption.
- 8.82% of participants as a whole cited "Lack of trust in the physician's recommendation" as their justification for declining. This shows that these individuals had reservations or worries about the efficacy or suitability of the

suggested equipment, which led to a lack of faith in the doctor's recommendations.

- 7.65% of all participants gave additional justifications for not using the suggested medical device.
- By having an understanding of these factors, healthcare practitioners may better address patient concerns, offer appropriate education and support, and suggest alternate solutions when suggesting medical devices. This will increase patient satisfaction and treatment plan adherence.

9) Type of medical devices that have been recommended by a Physician

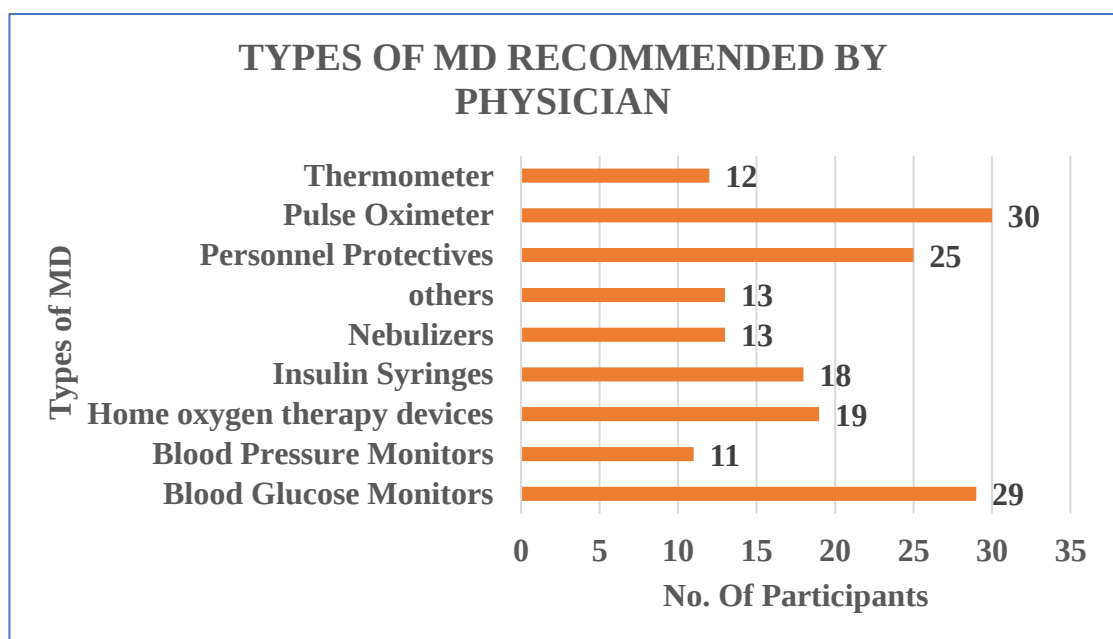


Fig 5.9: Bar chart showing Type of Medical Device that have been recommended to participants by Physician

Discussion and Findings:

- Among the participants, the medical device most commonly recommended by physicians was "Blood Glucose Monitors," 17.06% of the total participants receiving this recommendation.
- Following that, "Pulse Oximeter" and "Personnel Protective" devices were recommended to 30 and 25 participants, respectively.

- Other medical devices recommended to participants included "Home oxygen therapy devices" (19 participants), "Insulin Syringes" (18 participants), "Nebulizers" (13 participants), and "Thermometer" (12 participants).
- 13 participants reported that other types of medical devices were recommended to them by physicians, suggesting a diverse range of devices beyond the specific categories listed.
- The analysis of the types of medical devices recommended to participants indicates a varied spectrum of devices that physicians deemed necessary for managing and monitoring their patients' health. The prevalence of blood glucose monitors, pulse oximeters, and personnel protective devices suggests the significance of chronic disease management, oxygen monitoring, and infection control in the participants healthcare journeys.

10) Satisfaction on Using Medical Device Recommended by Physician

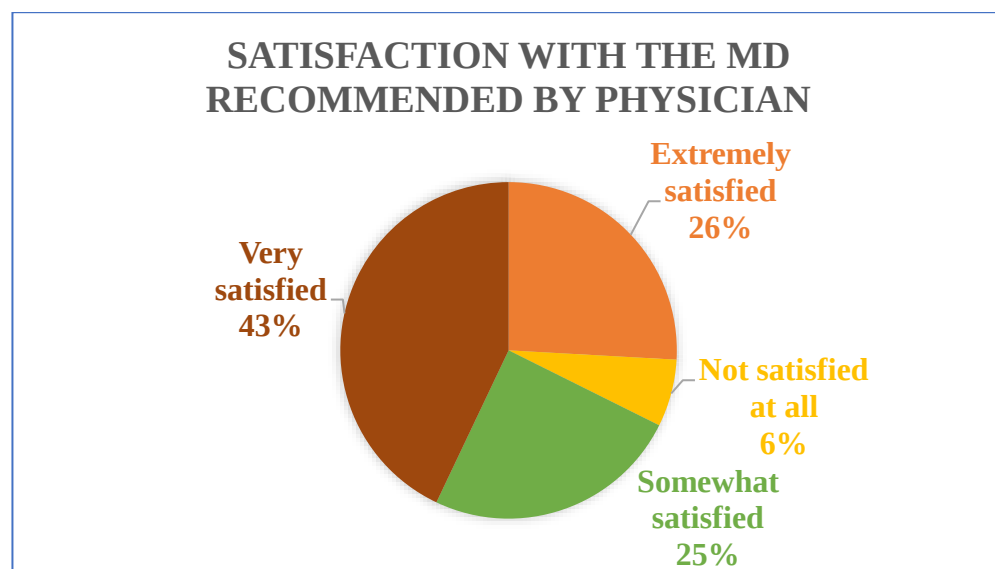


Fig 5.10: Pie chart showing Participants Satisfaction Level

Discussion and Findings:

- Among the participants, the majority, 42.94% of the total participants, reported being "Very satisfied" with using the recommended medical device. This indicates a high level of contentment and positive experiences among these participants, suggesting that the device has met or exceeded their expectations in terms of its effectiveness, usability, and impact on their health.

- Additionally, 44 participants (25.88% of the total) expressed being "Extremely satisfied" with the recommended medical device. This subset of participants exhibited an even higher level of satisfaction, indicating a strong endorsement of the device's performance and benefits.
- On the other hand, 24.71% of the total participants reported being "Somewhat satisfied" and a smaller proportion of participants, 6.47% of the total participants, stated being "Not satisfied at all" with the recommended medical device. This group represents the subset of participants who had negative experiences or perceived the device to be ineffective or burdensome.
- Understanding participants' satisfaction levels is crucial in evaluating the effectiveness and acceptability of medical devices. It provides valuable insights into the user experience, identifies areas for improvement, and enables healthcare professionals to address any concerns or issues that may arise. Healthcare practitioners can improve the overall standard of care, maximise the use of medical equipment, and improve patient outcomes by putting the needs of the patient first and taking into account their input.

11) Switching to a different MD after using the one recommended by physician

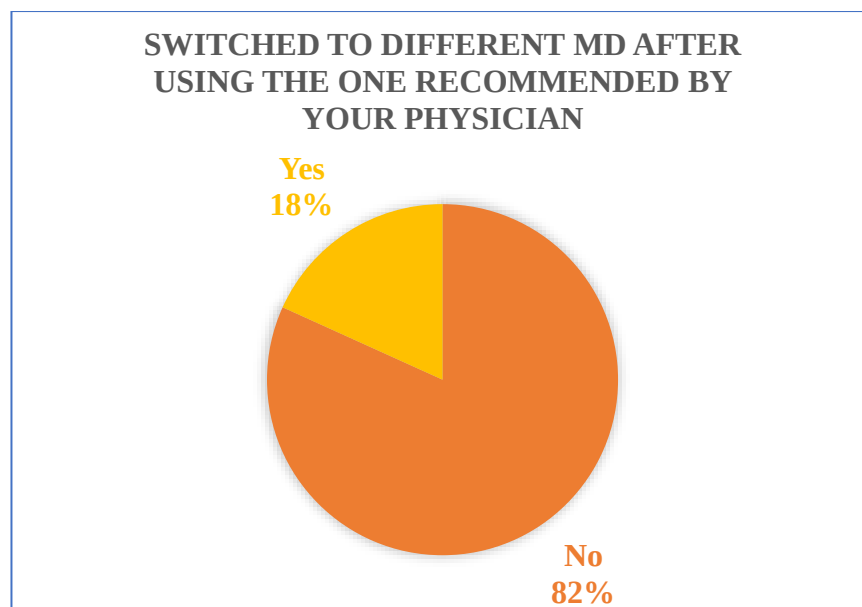


Fig 5.11: Pie chart showing Participants Switching to a different Medical Device after using the one recommended by physician

Discussion and Findings:

- Among the participants, the majority, 81.76% of the total participants, responded with "No" to switching to a different medical device. This indicates that the majority of participants remained with the initial device recommended by their physician and did not feel the need to switch to an alternative option.
- On the other hand, 18.24% of the total participants responded with "Yes" to switching to a different medical device.

12) Physicians' discussion on the potential benefits and risks of Medical Devices

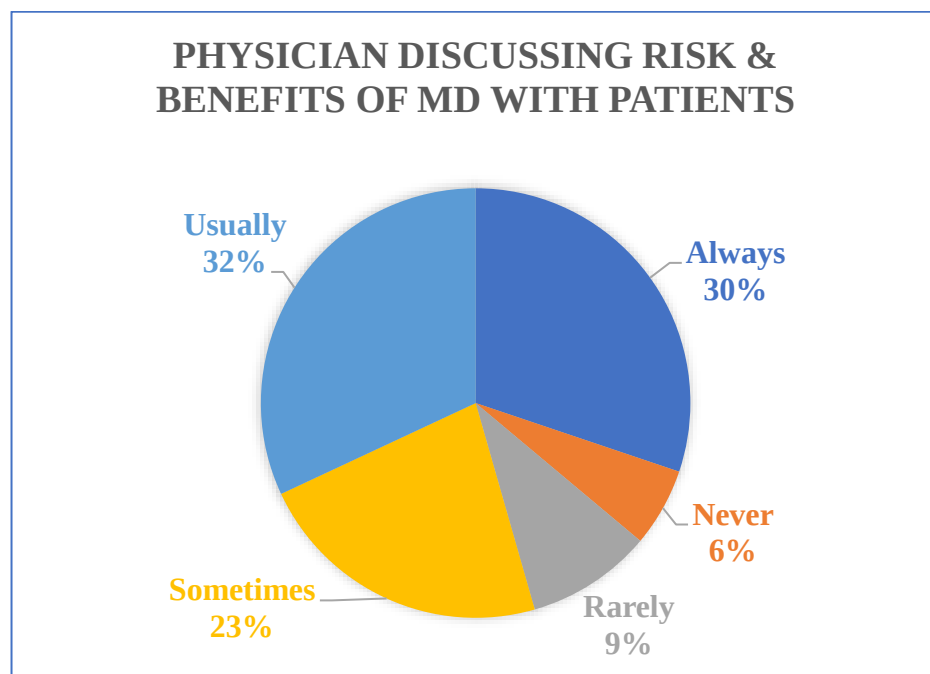


Fig 5.12: Pie chart showing Likelihood of Physicians discussion on the potential benefits and risks of Medical Devices with the participants

Discussion and Findings:

- The majority of participants (31.76% of the total) reported that their doctors typically discuss the potential advantages and disadvantages of medical devices with them. This may indicate that a sizable fraction of individuals has had frequent and thorough discussions with their doctors about the devices, enabling them to make deft choices regarding their use.

- Another noteworthy subset is the 30% of participants who said that doctors always mention the potential advantages and disadvantages of medical gadgets.
- 22.35% of all participants reported that their doctors occasionally discuss the benefits and dangers with them, demonstrating that these conversations do not always take place for all individuals.
- On the other side, 9.41% of the total participants and a smaller group of participants, 5.88% of the total participants, claimed that doctors never talk to them about the potential advantages and disadvantages of medical technology. This subset of participants implies that there is a lack of communication and information exchange between doctors and patients regarding the possible advantages and risks of the gadgets.

CHAPTER 6

CONCLUSION

This study set out to examine how patient uptake of medical devices was affected by physician recommendations. The analysis of participants' responses regarding physician recommendations indicates that physicians play a significant role in influencing patients' decisions to adopt medical devices. The majority of participants reported receiving recommendations from their physicians, highlighting the importance of the physician-patient relationship in guiding treatment options. The findings suggest that patients place considerable trust in their physicians' expertise and rely on their recommendations as a crucial factor in the adoption of medical devices.

The analysis of participants' satisfaction levels with the recommended medical devices further supports the positive impact of physician recommendations. The majority of participants expressed high levels of satisfaction, reporting positive impacts on their health. This implies that the recommended devices were effective in meeting their needs and improving their overall well-being. Such findings underscore the importance of physician recommendations in ensuring patient satisfaction and positive health outcomes.

Additional insights are also provided by the analysis of the many aspects influencing participants' choices to embrace medical devices. Cost, usability, and potential side effects all become important factors for patients to think about. The doctor's recommendation, however, had the greatest impact, highlighting the crucial role doctors play in their patients' decision-making. This emphasises how important it is for doctors and patients to communicate effectively. To help patients make well-informed decisions, doctors should give patients thorough information on the advantages, hazards, and alternatives of medical equipment.

Furthermore, the analysis of participants' likelihood of physicians discussing the potential benefits and risks of medical devices revealed mixed results. While a significant proportion of participants reported regular and comprehensive discussions with their physicians, indicating a positive communication practice, a subset of participants reported infrequent or absent discussions. This suggests a need for improved communication between physicians and patients, ensuring that discussions on potential benefits and risks are consistently conducted to empower patients in their decision-making process.

Furthermore, healthcare organizations should invest in training and professional development programs for physicians to enhance their communication skills and provide evidence-based recommendations. Incorporating patient preferences and perspectives into the purchase of medical devices is another way that politicians and healthcare managers may support patient-centred care. This can be accomplished through involving patients in the creation of guidelines and the evaluation of health technology.

CHAPTER 7

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ANNEXURES

Annexure – 1

Survey Form (Informed Consent and Questionnaire)

Medical Devices Recommendation by Physician

Dear Participant,

Thank you for considering taking my survey. I value your opinion and your input will help me in my research studies. Before you begin the survey, I would like to provide you with some important information:

Purpose of the survey:

*This survey is being conducted to better understand the **impact of physician recommendation on the adoption of medical devices by patients**. The information collected will be used to improve marketing strategies and to develop more effective communication with healthcare providers and patients.*

*This survey contains **2 sections**. 1st section is for **about your information** and 2nd section is **research based questions**. This survey should take **approximately 5 minutes to complete**. Please allocate enough time to answer all questions thoroughly.*

Voluntary Participation:

Participation in this study is completely voluntary. You have the right to refuse to participate or withdraw from the study at any time without penalty or loss of benefits to which you are entitled. Your decision to participate or not will not affect your current or future relationship with the researcher.

Confidentiality and privacy:

*Your responses will be **kept confidential and will only be used for research purposes**. Your personal information will not be shared with any third parties. The data will be stored securely and will be used for statistical analysis only.*

Contact information:

*If you have any questions or concerns about this survey, please **contact at darshanchhajer9@gmail.com**. I appreciate your feedback and look forward to hearing from you.*

By proceeding with the survey, you indicate that you have read and understood the information provided in this consent form and voluntarily agree to participate in this study.

Your age Category. *

Choose



Your Gender. *

Choose



Select Your State / UT. *

Choose



Your Highest Study Qualification *

Choose



Your Employment status. *

Choose



Do You know, what a medical Device is? *

☐ Yes

☐ No

Research Based Questions

A **medical device** is any instrument, apparatus, machine, implant, or other similar article that is intended for use in the diagnosis, treatment, or prevention of disease or other medical conditions. Medical devices can range from simple tools like thermometers and stethoscopes to complex devices like pacemakers and MRI machines.

Here are the categories of medical devices with examples:

- **Diagnostic devices:** X-ray machines, Blood glucose meters, Pulse oximeters, Ultrasound machines, Endoscopes, etc.
- **Therapeutic devices:** Pacemakers, Insulin pumps, Dialysis machines, Respirators, Infusion pumps, etc.
- **Implantable devices:** Artificial heart valves, Hip and knee implants, Breast implants, Neurostimulators, Cochlear implants, etc.
- **Personal protective equipment (PPE):** Face masks, Gloves, Gowns, Face shields, Respirators, etc.
- **Consumables and disposables:** Needles and syringes, Bandages and wound dressings, Catheters, Surgical instruments, Hemodialysis filters, etc.

Have you ever been recommended a medical device by a physician? *

- ☐ Yes
- ☐ No

How likely are you to adopt a medical device recommended by a physician? *

- ☐ Extremely likely
- ☐ Very likely
- ☐ Somewhat likely
- ☐ Not likely at all

What factors influence your decision to adopt a recommended medical device? *

Choose

How important is the recommendation of a physician in your decision to adopt a medical device? *

- ☐ Extremely important
- ☐ Very important
- ☐ Somewhat important
- ☐ Not important at all

Have you ever refused to adopt a medical device recommended by a physician? *

- ☐ Yes
- ☐ No

If you refused to adopt a recommended medical device, what was the reason? *

- ☐ Cost
- ☐ Ease of use
- ☐ Potential side effects
- ☐ Lack of trust in the physician's recommendation
- ☐ Other: _____

What types of medical devices have you been recommended by a physician? *

Choose

Have you ever experienced a positive impact on your health as a result of using a medical device recommended by a physician? *

- ☐ Yes
- ☐ No

Have you ever experienced a negative impact on your health as a result of using a medical device recommended by a physician? *

- ☐ Yes
- ☐ No

How satisfied are you with the medical device recommended by your physician? *

- ☐ Extremely satisfied
- ☐ Very satisfied
- ☐ Somewhat satisfied
- ☐ Not satisfied at all

Have you ever switched to a different medical device after using the one recommended by your physician? *

- ☐ Yes
- ☐ No

If you switched to a different medical device, what was the reason? *

- ☐ Cost
- ☐ Ease of use
- ☐ Potential side effects
- ☐ Recommendation by another physician
- ☐ Other: _____

How often do physicians discuss the potential benefits and risks of medical devices with their patients? *

- ☐ Always
- ☐ Usually
- ☐ Sometimes
- ☐ Rarely
- ☐ Never

[Back](#)

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Annexure – 2

Internship and Dissertation Completion Certificate



GSTIN : 29ADVPK6556F1ZV

PRECISE LIFE SCIENCE

Certificate Of Internship And Dissertation Completion

This is to certify that **Darshan Chhajed D**, student of **IIHMR University**, Jaipur has successfully completed an Internship and Dissertation program at **Precise Life Science**, demonstrating dedication, enthusiasm, and outstanding performance throughout the internship period (1st March, 2023 to 28th May, 2023).

During this period, He has actively contributed to various tasks and initiatives, displaying exceptional skills and knowledge in their field of study. His commitment, professionalism, and ability to adapt to challenging situations have been commendable.

He has also completed His Dissertation titled **"Analysing the impact of physician recommendation on the adoption of medical devices by patients"** under our Organization.

He has exhibited exceptional communication skills, collaboration, and problem-solving abilities, making a significant impact on the overall success of our organization. We express our sincere appreciation for His dedication, hard work, and exemplary performance during the internship program.

We wish Darshan Chhajed D all the best for their future endeavours and professional growth.

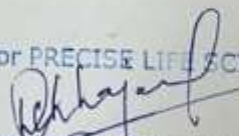
Date: 28/05/2023

Place: Bangalore

Mr. Vivek Chhajed

Director, Precise Life Science

For PRECISE LIFE SCIENCE



Proprietor/Authorised Signatory

No.4/1-4, 1st Floor, Portion A, 1st Main, A-Street, Kuvempu Nagar, New Guddadahalli, Bengaluru-560 026

 preciselifescience@gmail.com  +91 97419 68007

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